

Patent Claims

1. Method for manufacturing a measuring device (1) for determining
5 and/or monitoring a process variable of a medium in a container (2), said
device comprising
a mechanically oscillatable unit (5), which is securable via a securement (20)
to a sensor housing (15) and/or to the container (2), and
a driver/receiver unit (25), which excites the mechanically oscillatable unit (5)
10 to oscillate, or receives oscillations of the mechanically oscillatable unit (5),
characterized in that
the mechanically oscillatable unit (5) is excited to oscillate,
reaction forces and/or reaction moments are detected, which act on the
securement (20) due to the oscillations of the mechanically oscillatable unit
15 (5),
a report is issued, when the reaction forces and/or reaction moments exceed
predeterminable limit values, and,
in the case of a report, the mechanically oscillatable unit (5) is adjusted as
regards its oscillation properties.
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2. Apparatus for manufacturing a measuring device (1) according to the
method as claimed in claim 1,
characterized in that
a means (35, 42) is provided for securing the measuring device (1), and
25 at least one force detection unit (30.1) is provided, which is coupled with the
securement (20) in such a manner that it detects reaction forces and/or
reaction moments, which act on the securement (20) due to the oscillations of
the mechanically oscillatable unit (5).
- 30 3. Apparatus as claimed in claim 2,
characterized in that

at least one force transmission unit (35) is provided, which is coupled with the securement (20) and/or with the sensor housing (15) and with the force detection unit (30.1) in such a manner that the force detection unit (30.1) detects, via the force transmission unit (35), reaction forces and/or reaction moments acting on the securement (20).

4. Apparatus as claimed in claim 3, characterized in that the force transmission unit (35) comprises a flange.

5. Measuring device (1) for determining and/or monitoring a process variable of a medium in a container (2), comprising a mechanically oscillatable unit (5), which is secured via a securement (20) to a sensor housing (15) and/or to the container (2), and a driver/receiver unit (25), which excites the mechanically oscillatable unit (5) to oscillate, or receives oscillations of the mechanically oscillatable unit (5), characterized in that at least one force detection unit (30.1) is provided, which is coupled with the securement (20) in such a manner that it detects reaction forces and/or reaction moments, which act on the securement (20) due to oscillations of the mechanically oscillatable unit (5).

6. Measuring device (1) as claimed in claim 5, characterized in that the force detection unit (30.1) is arranged in such a manner that it detects reaction forces and/or reaction moments along an axis (31.1) essentially coinciding with an oscillation axis (6) of the mechanically oscillatable unit (5).

7. Measuring device (1) as claimed in claim 5, characterized in that the force detection unit (30.1) comprises an acceleration sensor.

8. Measuring device (1) as claimed in claim 5,
characterized in that
the mechanically oscillatable unit (5) comprises an oscillatory fork (7).

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9. Measuring device (1) as claimed in claim 5,
characterized in that
the mechanically oscillatable unit (5) comprises a single-rod (8).

10 10. Measuring device (1) as claimed in claim 9,
characterized in that
the mechanically oscillatable unit comprises a single-rod (8) having three
oscillatory members (8.1), and
at least one oscillatory member (8.1) is connected at a connecting region (8.2)
15 with the securement (20).